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AN ROINN OIDEACHAIS

(Department of Education).

BRAINSE AN MHEADHON-OIDEACHAIS

(Secondary Education Branch).

LEAVING CERTIFICATE EXAMINATION, 1925

HONOURS PHYSICS.

WEDNESDAY, 24th JUNE.—MORNING, 10' A.M. TO
12 NOON.

Explanatory sketches should be given where necessary.

[All six questions may be attempted.]

1. Explain why, if a tank with vertical sides is half filled with water, the water does not appear to fill half the tank. How does the position of the observer affect the apparent depth filled?

2. Describe and explain a method which has been used to measure the velocity of light.

3. Define *force* and *acceleration*. In what units are they measured? How would you use Atwood's machine or a Fletcher trolley to determine the relation between the acceleration produced in a given mass and the force that produces the acceleration?

4. Define *work*. State the unit of work. Work is done when (a) water is raised from a well, (b) when a body is weighed on a spring balance, (c) when a horse pulls a cart along a level road. Discuss possible methods of estimating the work done in each of these cases.

5. A current is sent from a battery through a wire *AB*. Show how you would attach an ammeter and a voltmeter so that they would enable you to determine the resistance of the wire. If the current is 5 ampères, and the difference of potential between *A* and *B* is 4.5 volts, find the resistance of the wire. What would be the resistance of a wire of the same material having double the length and half the diameter of *AB*?

6. What do you understand by electro-magnetic induction? Explain the working of a simple dynamo.